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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,774	09/10/2003	Henrik Christensen	45900-000757/US	3924
30593	7590	05/25/2004	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.		KWOK, HELEN C		
P.O. BOX 8910		ART UNIT		PAPER NUMBER
RESTON, VA 20195		2856		

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/658,774 Examiner Helen C. Kwok	CHRISTENSEN ET AL. Art Unit 2856 <i>pw</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-25 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/28/04
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

**Priority**

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

**Claim Rejections - 35 USC § 112**

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 8-9, the phrase "said second reflection" lacks antecedent basis.

In line 12, the phrase "the prediction" lacks antecedent basis.

In claim 5, line 2, the phrase "the first, second or third reflection" lacks antecedent basis. In line 3, the phrase "a third layer" is not clear. How could there be a third layer when there is no claim or mention of a second layer. It appears that this claim should be depended on claim 4.

In claim 12, line 2, the phrase "the materials" lacks antecedent basis.

In claim 22, line 2, the word "programme" should be changed to -- program --.

In claim 24, line 1, the word "programme" should be changed to -- program --.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-9, 12-14 and 17-24 are rejected under 35 U.S.C. 102(b) as being anticipated by either U.S. Patent 5,038,615 (Trulson et al.) or U.S. Patent 5,974,886 (Carroll et al.).

With regards to claims 1-9, 12-14 and 17-20, the references, Trulson et al. and Carroll et al., disclose an ultrasonic thickness measurement device comprising, as illustrated in Figures 1-6 and Figures 1-5, respectively, providing a response signal reflected by a structure; selecting from the response signal, a first reflection between a first layer and a previous layer; predicting a shape based upon the first reflection of a further reflection from an interface between the first layer and a subsequent layer; locating the further reflection using the predicted shape; determining a duration between the first reflection and the further reflection to determine the thickness of the first layer. Furthermore, the references suggest a second reflection, a third reflection, and a fourth reflection. Also, a liquid (i.e. water) is provided between the point of transmission and the structure. (See, column 2, line 47 to column 7, line 36 of Trulson et al; column 2, line 59 to column 8, line 22).

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With regards to claims 21-24, the claims are directed to an apparatus and a computer system for determining the thickness of a structure using the method of the above claims. Hence, these claims are commensurate in scope with the above claims and are rejected for the same reasons as set forth above.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10-11, 15-16 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over either U.S. Patent 5,038,615 (Trulson et al.) or U.S. Patent 5,974,886 (Carroll et al.).

With regards to claims 10-11, the references do not teach the calculated difference is determined on an L1 norm criterion or a least square criterion. Although the references do not explicitly suggest the calculated difference is determined by either an L1 norm criterion or a least square criterion, it would have been obvious to a person of ordinary skill in the art at the time of invention to have readily recognize the advantages and desirability of calculating the difference by either an L1 norm criterion or a least square criterion in lieu of the data calculation as suggested in the references.

since using other configuration and calculation methods can be used without departing from the scope of the invention, namely to determine the thickness of a test object.

With regards to claims 15-16 and 25, the references do not explicitly teach the structure is a pipe made of a plurality of layers. However, the references do suggest the structure can be of steel material or metallic material; hence, it would have been obvious to an artisan to employ a pipe or any other test object or test material as the structure depending on what is being tested and chosen by the operator.

### ***Conclusion***

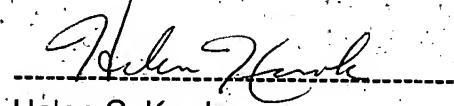
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The references cited are related to measuring thickness of a multi-layered object.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen C. Kwok whose telephone number is (571) 272-2197. The examiner can normally be reached on 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Helen C. Kwok  
Art Unit 2856

hck  
May 7, 2004